

SEP 7 1982

1808-D

Y 1.1/8:97-728

Union Calendar No. 448

97th Congress, 2d Session

House Report No. 97-728

COMPLETED

ORIGINAL

FAILURE OF THE AIR FORCE AND NAVY TO
DEVELOP COMMON RADAR WARNING
RECEIVERS IS COSTLY

TWENTY-SIXTH REPORT

BY THE

COMMITTEE ON GOVERNMENT
OPERATIONS

Y 1.1/8:97-728



AUGUST 12, 1982.—Committed to the Committee of the Whole House
on the State of the Union and ordered to be printed

U.S. GOVERNMENT PRINTING OFFICE

97-524 O

WASHINGTON : 1982

COMMITTEE ON GOVERNMENT OPERATIONS

JACK BROOKS, Texas, *Chairman*

L. H. FOUNTAIN , North Carolina	FRANK HORTON , New York
DANTE B. FASCELL , Florida	JOHN N. ERLNBORN , Illinois
BENJAMIN S. ROSENTHAL , New York	CLARENCE J. BROWN , Ohio
DON FUQUA , Florida	PAUL N. McCLOSKEY, Jr. , California
JOHN CONYERS, Jr. , Michigan	THOMAS N. KINDNESS , Ohio
CARDISS COLLINS , Illinois	ROBERT S. WALKER , Pennsylvania
JOHN L. BURTON , California	N. CALDWELL BUTLER , Virginia
GLENN ENGLISH , Oklahoma	LYLE WILLIAMS , Ohio
ELLIOTT H. LEVITAS , Georgia	JOEL DECKARD , Indiana
DAVID W. EVANS , Indiana	WILLIAM F. CLINGER, Jr. , Pennsylvania
TOBY MOFFETT , Connecticut	RAYMOND J. McGRATH , New York
HENRY A. WAXMAN , California	HAL DAUB , Nebraska
FLOYD J. FITHIAN , Indiana	JOHN HILER , Indiana
TED WEISS , New York	WENDELL BAILEY , Missouri
MIKE SYNAR , Oklahoma	LAWRENCE J. DeNARDIS , Connecticut
EUGENE V. ATKINSON , Pennsylvania	JUDD GREGG , New Hampshire
STEPHEN L. NEAL , North Carolina	MICHAEL G. OXLEY , Ohio
DOUG BARNARD, Jr. , Georgia	
PETER A. PEYSER , New York	
BARNEY FRANK , Massachusetts	
HAROLD WASHINGTON , Illinois	
TOM LANTOS , California	
BARBARA B. KENNELLY , Connecticut	

WILLIAM M. JONES, *General Counsel*

JOHN E. MOORE, *Staff Administrator*

JOHN M. DUNCAN, *Minority Staff Director*

CATHERINE S. CASH, *Staff Director*

LEGISLATION AND NATIONAL SECURITY SUBCOMMITTEE

JACK BROOKS, Texas, *Chairman*

DANTE B. FASCELL , Florida	FRANK HORTON , New York
DON FUQUA , Florida	JOHN N. ERLNBORN , Illinois
ELLIOTT H. LEVITAS , Georgia	M. CALDWELL BUTLER , Virginia
DAVID W. EVANS , Indiana	WILLIAM F. CLINGER, Jr. , Pennsylvania
HENRY A. WAXMAN , California	

RICHARD C. BARNES, *Staff Director*

DAVID E. HOLT, *Professional Staff Member*

LESLIE L. MEGYER, *GAO Supervisory Auditor Detainee*

LETTER OF TRANSMITTAL

HOUSE OF REPRESENTATIVES,
Washington, D.C., August 12, 1982.

HON. THOMAS P. O'NEILL, JR.,
Speaker of the House of Representatives,
Washington, D.C.

DEAR MR. SPEAKER: By direction of the Committee on Government Operations, I submit herewith the committee's twenty-sixth report to the 97th Congress. The committee's report is based on a study made by its Legislation and National Security Subcommittee.

JACK BROOKS, *Chairman.*

(III)

Blank Page

CONTENTS

	Page
I. Summary.....	1
II. Hearings.....	2
III. Background.....	2
IV. Congressional and Office of the Secretary of Defense attempts to increase commonality.....	3
A. OSD requests implementation of eight tasks to help achieve commonality.....	4
B. Significant commonality could have been achieved.....	5
V. ALR-67 and ALR-74 commonality goal has not been achieved.....	5
A. Commonality at 19 percent is reached.....	6
B. DOD claims during hearing are unsubstantiated.....	6
1. OSD wanted ALR-67/ALR-69 update to be com- mon.....	6
2. DOD claims 50 percent commonality between the receivers.....	7
3. DOD claims on cost and time required to achieve commonality are not supported.....	7
VI. Air Force and Navy disagreements result in missed opportunities..	7
VII. Individual interests of the services contribute to lack of commonality..	8
A. Air Force and Navy did not comply with OSD guidance....	8
B. Proposed ALR-74 memorandum of agreement is not signed..	10
VIII. Millions are wasted due to lack of commonality.....	10
IX. Findings.....	11
X. Recommendations.....	11

Union Calendar No. 448

97TH CONGRESS } HOUSE OF REPRESENTATIVES { REPORT
2d Session } No. 97-728

FAILURE OF THE AIR FORCE AND NAVY TO DEVELOP COMMON RADAR WARNING RECEIVERS IS COSTLY

AUGUST 12, 1982.—Committed to the Committee of the Whole House on the
State of the Union and ordered to be printed

Mr. BROOKS, from the Committee on Government Operations,
submitted the following

TWENTY-SIXTH REPORT

BASED ON A STUDY BY THE LEGISLATION AND NATIONAL SECURITY
SUBCOMMITTEE

On August 10, 1982, the Committee on Government Operations approved and adopted a report entitled "Failure of the Air Force and Navy To Develop Common Radar Warning Receivers Is Costly." The chairman was directed to transmit a copy to the Speaker of the House.

I. SUMMARY

The Air Force and the Navy are not complying with congressional intent to use common radar warning receivers. Specifically, the Navy and the Air Force plan to acquire from the same contractor different radar warning receivers for their tactical aircraft at a cost through production exceeding \$1.7 billion. A radar warning receiver (RWR) alerts the pilot that his aircraft is being tracked by enemy radar.

In response to congressional concern with the proliferation of defense systems, the Office of the Secretary of Defense (OSD) recognized in 1980 that the operational requirements for these receivers were virtually identical and instructed the two services to establish a joint acquisition program. This did not happen. The lack of commonality between the ALR-67 and the ALR-74 has come about primarily because of (1) service disagreements on the future availability of technology and the precise nature of the enemy threat and (2) service parochialism as evidenced by noncompliance with OSD guidance designed to achieve commonality and their refusal to sign a memorandum of agreement establishing a joint radar receiver office. The Office of the Secretary of Defense, in apparent retreat from its 1980 position, joined the Navy and the Air Force in arguing during the hearing that

(1) the ALR-67 and the ALR-67/69 update (now called ALR-74) were not intended to be highly common and (2) the cost of modifying the aircraft using this receiver exceeds the benefits of stopping the ALR-67 and ALR-74 programs to achieve more commonality now. Nevertheless, evidence shows continued proliferation of radar warning receivers, with duplication of costs for development, modification, testing, and support activities, has resulted in millions of dollars being wasted.

II. HEARINGS

On June 15, 1982, the Legislation and National Security Subcommittee of the House Committee on Government Operations conducted a hearing on "Procurement of Radar Warning Receivers by the Air Force and the Navy." Testimony was presented by the General Accounting Office (GAO), the Office of the Secretary of Defense (OSD), the Air Force, and the Navy. Part of the testimony was given in executive session.

III. BACKGROUND

A radar warning receiver intercepts radar pulses so that the type of transmitting radar, its range, and pulse direction are displayed, via a cathode ray tube screen, to the pilot. With this information, a pilot is able to ascertain that he is being tracked by radar, whether or not the radar is capable of weapons delivery, and when he will be in the lethal range of a radar-directed weapon. The pilot can then elect to jam the enemy radar, dispense chaff, take evasive action, or avoid the threat. The ability of a radar warning receiver to detect and display threat information to a pilot is directly related to aircraft survivability. Commands of both the Air Force and the Navy utilizing this equipment have stated that RWR's are the number one priority system for survivability in their combat aircraft.

The Navy began developing an RWR, designated the ALR-67, in 1975. The GAO has reported that the receiver had a prolonged and troubled development, with production not scheduled to begin until this summer. In 1976, the Air Force began development of the ALR-69. The ALR-69 is in production and 1,400 have been installed in operational aircraft. However, the Air Force had found that the ALR-69 lacked adequate capability and initiated plans in 1979 to update it with the ALR-74. Production of the ALR-74 is scheduled to begin in November 1983. Initial installation is scheduled to begin some time after the Navy's ALR-67 becomes operational.

The Navy's ALR-67 and the Air Force's ALR-74 are being developed by the same contractor—Applied Technology, Division of Itek Corporation. The Navy intends to buy 2,592 ALR-67's, at a program cost of \$1,014.3 million, for use in the F-18, F-14, EA-6B, A-6E, and AV-8V tactical aircraft. The Air Force plans to buy 2,607 ALR-74's, at a program cost of \$715.8 million, for use in the F-16, A-10, and F-4 tactical aircraft. The total cost to develop and produce both systems is shown in the table below.

[In millions of dollars]

System	Fiscal year 1982 and prior	Fiscal year 1983	Fiscal year 1984 to completion	Total system cost
ALR-67	18.2	63.7	932.4	1,014.3
ALR-74	51.8	120.1	543.9	715.8
Total	70.0	183.8	1,476.3	1,730.1

IV. CONGRESSIONAL AND OFFICE OF THE SECRETARY OF DEFENSE ATTEMPTS TO INCREASE COMMONALITY

During the Legislation and National Security Subcommittee hearing, Chairman Jack Brooks emphasized that standardization is needed not only to reduce the costs of weapons systems but to increase operational readiness through greater interoperability between the Air Force and the Navy and among North Atlantic Treaty Organization (NATO) forces. Chairman Brooks pointed out that the subcommittee has reviewed other efforts to increase the standardization and interoperability of weapons and military equipment within the Nato Alliance and found that progress has been slow. It is clear that increased efforts in this area would bring about improved readiness and enormous savings.¹

During fiscal year 1980 authorization hearings before the House Armed Services Committee, the Department of Defense was told to promote commonality in radar warning receivers. The House Armed Services Committee expressed concern over the complicated logistics support posture caused by different equipment in the inventory and requested that the Office of the Secretary of Defense (OSD) develop a plan to increase RWR commonality.

In response to the concern expressed by the House Armed Services Committee about the proliferation of radar warning systems, the Principal Under Secretary of Defense for Research and Engineering wrote to the Air Force and the Navy on three separate occasions, urging them to achieve acquisition and support cost economies by increasing RWR system commonality.

On February 20, 1980, he wrote the Secretaries of the Air Force and the Navy:

OSD is committed to reducing the number of different RWR systems that we must support with the hope that we can utilize the savings to buy more RWRs and meet the inventory requirements of the combat forces. . . . It is my desire that future performance improvements and growth capabilities added to the Navy's base line AN/ALR-67 and Air Force's AN/ALR-69 (now designated ALR-74) radar warning receivers systems be defined and implemented in terms of hardware that is common to both systems and interchangeable to the maximum practical extent. . . . Accord-

¹ "Procurement of Radar Warning Receivers by the Air Force and the Navy," hearing before the Legislation and National Security Subcommittee, Committee on Government Operations, U.S. Congress, June 15, 1982, p. 3. (Hereinafter cited as "Hearing." Page references are to the unpublished transcript.)

ingly, I request the Air Force and Navy to terminate their separate RWR improvement efforts and merge them into one program to define, build, test, and acquire the agreed upon hardware.

On July 24, 1980, the Principal Under Secretary of Defense for Research and Engineering wrote again:

In my memorandum of 20 February 1980 on this subject, I requested that a joint Navy/Air Force effort be undertaken to define an update program for current Navy/Air Force RWRs, the ALR-67 and ALR-69 (now designated ALR-74). . . . The progress on that effort has been much slower than I had anticipated . . . no substantive common technical and programmatic alternatives have been surfaced. I desire that each Service present a detailed briefing that responds specifically to the guidance contained in my 20 February 1980 memorandum.

In August 1980, the Air Force and the Navy presented briefings to OSD. As a result of the briefings, the Under Secretary of Defense issued yet another memorandum dated October 15, 1980, stating:

While we did not reach complete agreement on a common update program, we have made significant progress toward arriving at the common update program needed. I remain convinced that we can structure a joint program to produce common hardware that the (ALR-67/ALR-69 update program—now designated ALR-74) will need. . . . For example, subsystems such as the processor and quadrant receiver can be used by both services with minor changes. . . .

A. OSD requests implementation of eight tasks to help achieve commonality

The October 15, 1980, memorandum restated OSD's commitment to produce common hardware that both the ALR-67 and the ALR-74 could use. OSD concluded that Navy and Air Force radar warning receivers have essentially the same mission and that the space available for the system in the services' aircraft is similar. Since the same contractor is building both receivers, these facts reinforced OSD's conclusion that a common carrier could be built.

The memorandum established a plan with eight tasks to be implemented by the Air Force and the Navy. OSD stated that implementation of the plan could result in a common receiver that would reduce the current proliferation of receivers and enable DOD to make the best use of its funds. In brief, the eight tasks in the plan were to:

1. Establish a joint program office.
2. Arrive at an agreed estimate of the enemy threat and refine and substantiate design specifications.
3. Ensure production capacity adequate to satisfy both services' requirements.
4. Survey aircraft to determine controlling dimensions of the receiver and package the special receivers being used by the services as a common module.
5. Demonstrate alternative (Air Force vs. Navy) pulse density

screening philosophies and present the results prior to committing a new design approach to full-scale prototyping.

6. Develop a common module to interface with the Airborne Self-Protection Jammer.

7. Establish a senior scientific advisory group to conduct independent objective evaluations of differing Air Force and Navy technical approaches.

8. Restructure the New Threat Warning System program consistent with the guidance listed here and with full Navy participation.

B. Significant commonality could have been achieved

In the October 15, 1980, memorandum, OSD allowed continued development of the ALR-67 and production of the ALR-69, and designated the Air Force to lead in the ALR-67/ALR-69 update modification program, now designated the ALR-74.

According to GAO, an OSD official stated that the Air Force and the Navy were permitted to continue acquisition of their own RWR's in the belief that the goal of commonality would eventually be realized. During the hearing, Walton H. Shuley, Jr., director of the Mission Analysis and Systems Acquisition Division at the General Accounting Office, testified:

The Office of the Secretary of Defense (OSD) recognized that the operational requirements for the two receivers are virtually identical. Accordingly, it instructed the two services to achieve maximum commonality and set forth eight tasks it wanted implemented so that standard hardware could be built. It was believed 80 percent commonality could be achieved between the Navy ALR-67 and Air Force ALR-74.²

DOD has failed to achieve the 80 percent commonality between the receivers. It now claims that when the ALR-67 is updated using components from the ALR-74, the program plan calls for a commonality level of 60 to 70 percent.

Applied Technology, the contractor for the ALR-67 and the ALR-74, studied how commonality could be achieved. The \$600,000 study,³ published in September 1980, assumed that (1) the Navy's ALR-67, with minimum modification, could be used as the model RWR and (2) the Navy and the Air Force could develop their RWR's based on common capabilities. The Applied Technology study summarized the key performance characteristics to be provided by the common design, highlighted the performance characteristics that would be different for the two services, and identified the resultant degree of hardware commonality. The study did not determine a specific percentage of commonality; however, an Air Force official has estimated that, based on the Applied Technology study, as much as 80 percent commonality would be possible.

V. ALR-67 AND ALR-74 COMMONALITY GOAL HAS NOT BEEN ACHIEVED

A Navy official told GAO that in reality there is little commonality between the two systems. Air Force officials for the ALR-74 program

² Ibid., p. 11.

³ "Executive Summary on ALR-67/69 Commonality," prepared for Warner Robins Air Logistics Center under contract FO 9803-79-G-3577-0007, September 24, 1980, Applied Technology, a Division of ITEK Corporation.

office advised GAO that the two receivers are less than 80 percent common. The Air Force ALR-74 officials said they were unable to determine the degree of commonality that does exist, but that the differences between the two receivers are significant.

A. Commonality at 19 percent is reached

On April 1, 1982, Applied Technology presented RWR commonality status briefing to OSD showing that, on a percentage of system cost basis, only 19 percent commonality exists between the Navy's ALR-67 and the Air Force's ALR-74. The briefing charts illustrated that as much as 62 percent commonality could exist between the Navy's planned ALR-67 update and the ALR-74. However, Navy officials advised that the Navy intends to update the ALR-67 in a way that increases commonality only an additional 7 percent beyond the existing 19 percent, for a total of 26 percent commonality. Navy officials stated that further increases in commonality can be attained with future, although undefined, improvements to receivers. Some of these improvements would be in the form of warning of other electromagnetic threats beyond radar, such as laser, infrared, optical, and millimeter waves.

Congressman Frank Horton stated during the subcommittee hearing that less than 20 percent commonality some 20 months after the issuance of OSD directives to the services is not encouraging.⁴ He said he found this situation distressing since OSD had felt that a greater degree of commonality was a valid objective.

B. DOD claims during hearing are unsubstantiated

During the hearing, DOD witnesses claimed that the intent of the direction on commonality applied only to future improvements; that is, to future updates that may materialize after both systems are placed in the aircraft. DOD also claimed that on a piece-parts basis the ALR-67 and the ALR-74 are 50 percent common. Furthermore, DOD maintained (1) that added cost to the Navy to change the ALR-74 now would be greater than \$500 million or for the Air Force to change the ALR-67 would be greater than \$1 billion, and (2) the probable cost to develop a 100 percent common radar warning receiver would be \$1 billion more than the current ALR-67/ALR-74 and would take 4 years. These factors are not valid because it was never intended that the Navy and the Air Force use either the ALR-74 or the ALR-67, nor propose development of 100 percent common receiver. The cost of an RWR more common than the ALR-67 and ALR-74 but less than 100 percent common is unknown. GAO stated in the hearings that 100 percent commonality was not practical because of form and fit considerations.

1. OSD wanted ALR-67/ALR-69 update to be common.—GAO witness Walton Sheley testified during the hearing that his agency's auditors "talked with contractor officials, with officials in OSD, in the Air Force and Navy who were intimately involved in the programs and they confirmed that the goal was commonality between the ALR-67 and ALR-74 units."⁵ However, during the hearing, DOD officials

⁴ Hearing, p. 8.

⁵ Ibid., p. 7 of closed session transcript.

testified that commonality was not to be achieved between the ALR-67 and the ALR-74 but on the updates of these radar warning receivers.

2. DOD claims 50 percent commonality between the receivers.—DOD claims that the ALR-67 and the ALR-74 are 50 percent common on a piece-parts basis rather than the unit as a whole. Even if the ALR-67 and the ALR-74 are 50 percent common on a piece-parts basis, this by itself is meaningless because many components are low cost and easily maintained. In other words, the number of parts on a unit may be 50 percent common but the remaining 50 percent of the unit may cost as much as 90 percent of the total cost of the receiver. For example, the high band receiver and frequency measurement receiver system/controller represent 65 percent of the cost of the two receivers; yet these systems in the Navy and the Air Force receivers are only 10 percent common, according to the Applied Technology study. The common piece-parts counts in these units would be higher.

After the hearing, Chairman Brooks requested in writing that DOD provide information regarding the assertion that the ALR-67 and the ALR-74 are 50 percent common, specifically any study that supports the 50 percent commonality claim and a list of piece parts that make up this 50 percent. DOD acknowledged that no study had been performed—only an estimate was projected by two DOD officials based on a quick review of the piece parts used in the two systems and on “past experience where piece counts were made on similar systems.” DOD was unable to provide a list of the piece parts but promised that the information would be available in late 1982.

3. DOD claims on cost and time required to achieve commonality are not supported.—Even though OSD directed the Air Force and the Navy in 1980 to move toward significant commonality, it now maintains that the cost and time required to achieve commonality between the ALR-67 and the ALR-74 are prohibitive at this late date.

The committee recognizes that the program changes and redesigns possibly needed to achieve commonality may require significant trade-offs, such as program delays and contract cost adjustments. The program delays could affect the operational capabilities of the F-18 and the F-16 aircraft beyond the dates on which the ALR-67 and the ALR-74 are scheduled to be installed. The committee would expect that costs and benefits of this trade-off would be carefully analyzed before any decision were made to alter the procurement.

VI. AIR FORCE AND NAVY DISAGREEMENTS RESULT IN MISSED OPPORTUNITIES

Differing Air Force and Navy estimates of the availability of future technology to cope with an enemy threat represent a major philosophical disagreement contributing to the absence of a common radar warning receiver. Other factors, such as disagreement on the precise nature of the threat, design preferences, and certain unique service requirements, have also deterred the services from proceeding with a common RWR design. The disagreement is most evident in the differences in the RWR's major components: receiver, signal processor, azimuth indicator, transmission, and antenna switch.

When OSD directed the services to terminate their individual ef-

forts to obtain radar warning receivers, the Navy proposed that its ALR-67 be used as the common receiver for both services. The Navy position was that the ALR-67 could be used in the near term. It was understood that the ALR-67 would have to be updated in the mid-term to handle increased enemy radar activities.

Ultimately, the Air Force rejected the Navy proposal on the grounds that the technology needed to upgrade the system would not be available in the time frame required. The Air Force argued that without the needed upgrade, the operational capability of the system would deteriorate to an unsatisfactory level. By then, the Air Force believed the ALR-67 would be incapable of dealing with enemy radars. The Navy agrees with this assessment and plans to use parts of the ALR-74 to improve the ALR-67 in the mid-term. Hence, when designing the ALR-74, the Air Force was motivated, not by commonality considerations, but by making the receiver as capable as possible with proven technology. A significant lack of commonality resulted in both the physical components of the receivers and the way in which the receivers process enemy radar pulses.

The Navy's position is that its ALR-67 is capable in the near term, the new technology it wants will be available in the mid-term when it is required, and the technology the Air Force intends to use is not necessary. The ALR-67 can use the Air Force technology in the mid-term if their new technology developments do not materialize as planned.

VII. INDIVIDUAL INTERESTS OF THE SERVICES CONTRIBUTE TO LACK OF COMMONALITY

The services' individual interests, often veiled by arguments relating to costs, technical approaches, and the immediate need for a system, are a major cause contributing to the lack of commonality in radar warning receivers. For example, the services have ignored the tasks set forth by OSD in its plan to enhance commonality and have not signed a memorandum of agreement intended to help manage the ALR-74 program. Air Force General Delbert H. Jacobs, Deputy for General Purpose Forces, Directorate of Operational Requirements, testified during the hearings^a that he agreed with GAO that service parochialism has contributed to a lack of commonality. General Jacobs stated that although there has been a lack of cooperation in the past, he believes the services are now beginning to work together.

A. Air Force and Navy did not comply with OSD guidance

As already noted, OSD issued guidance to the Air Force and the navy on October 15, 1980, requesting their participation in a common radar warning receiver update program. Despite the fact that implementation of the guidelines could result in a more common receiver that would reduce the current proliferation of receivers and enable DOD to make the best use of electronic warfare funds and talent, Air Force and Navy officials have continued to work independently on their respective programs with little cooperation between the services.

^a Ibid., p. 77 of closed session transcript.

None of the eight tasks OSD set forth in its guidance directive have been implemented by either service. Chairman Brooks observed at the hearing:

Even taking this testimony in its most favorable light, the DOD must be concerned when their clearly stated instructions to cooperate are virtually ignored.

(This is one more example) of taxpayers' dollars being wasted because of a lack of cooperation.

* * * * *

(This area) may be just the tip of the iceberg in terms of the savings that would result from genuine cooperation among the services.⁷

The services' reasons for noncompliance with the eight tasks are outlined below.

1. *Establish a joint program office.*—The Navy has consistently resisted participation, maintaining establishment of the office was merely a suggestion and not an order. As of February 1982, the ALR-74 program office of the Air Force had sponsored seven meetings to discuss establishing such an office. The Navy participated in these meetings but sent different individuals to each of them.

2. *Estimate the enemy threat and refine and substantiate design specifications.*—The joint studies were not conducted because the Navy took the position that either OSD or the Air Force as the lead service should be responsible for this task. Therefore, no agreement on the threat was ever reached.

3. *Ensure production capacity to satisfy requirements of both services.*—The Air Force modified the Navy's ALR-67 baseline design in such a way that a common production capacity would no longer meet the needs of the services.

4. *Development of a common module.*—Each service blamed the other for refusal to participate in developing a common module. The Navy did instruct the contractor to track the commonality between the two receivers. Later, the Navy determined that only one of its aircraft could accept the receiver without costly modification. The Air Force polled its aircraft program offices to determine the feasibility of using a common module. Only one program office responded, stating it could not accommodate the common module without costly modification.

5. *Demonstrate alternative pulse density screening philosophies.*—The Navy maintained that it could not comply with this task in the immediate future. The Air Force has not conducted a demonstration to assess its screening philosophy and has no plans to do so in the future. Though mandated by OSD, the services did not cooperate fully to accomplish this task.

6. *Develop a common module to interface with the Airborne Self-Protection System.*—Neither service has worked on a common module to interface with the Airborne Self-Protection System because each is using different specifications for their receivers.

7. *Establish a senior scientific advisory group to make independent evaluations.*—The Navy maintained that this function could be ful-

⁷ Ibid., p. 90 of closed session transcript.

filled by an already existing joint coordinating group. The Air Force believed that the group was not appropriate and could cause program delays.

8. *Restructure the New Threat Warning System program.*—The Navy refused to participate fully in this program, maintaining the ALR-67 is sufficient; however, it said it might participate in the technical portion of the program. The Air Force maintained that it was not necessary to establish a joint program office since the Navy is not a full participant in the program.

B. Proposed ALR-74 memorandum of agreement is not signed

Efforts began as early as October 1980 to sign a memorandum of agreement between the Air Force and the Navy defining responsibilities in a joint service ALR-67/69 update program, now designated the ALR-74. No memorandum of agreement acceptable to both services has been drafted, but plans are under way for an agreement to be signed in November 1982.

Navy concerns about joint efforts with the Air Force are revealed in a document that states:

This * * * (designation of the Air Force as the lead in the joint effort) puts the Navy in the untenable position of not being able to control the configuration or the improvements to its own ALR-67 RWR system thereby jeopardizing its future utility to the Navy * * *. The Navy's ability to influence programmatic or technical decisions in a Joint Program Office with Air Force lead and funding is extremely doubtful since the USAF has OSD approval to proceed prior to establishing performance requirements; technical approach, test requirements; logistics support objectives; equipment, avionics and aircraft interface specifications; funding shares; and schedules. . . . Furthermore, the (Air Force lead) can be interpreted to mean that the USAF is the lead service for all future warning receiver developments.*

On the other hand, the Air Force feared that important decisions could be delayed by Navy efforts to influence the terms of the ALR-74 memorandum of agreement regarding management control and inter-service cooperation and that the final terms of the agreement might create difficulties in implementing an Air Force lead program.

Noting the lack of cooperation between the services, Chairman Brooks observed that cooperative efforts within the Department of Defense appear difficult to attain, primarily because of narrow interests fostered by each service. The chairman further noted that by continually finding reasons why commonality cannot be achieved, DOD is not setting a good example for our NATO allies to follow in establishing standardization and interoperability.

VIII. MILLIONS ARE WASTED DUE TO LACK OF COMMONALITY

Mr. Sheley, the GAO witness, testified during the hearing that although there exists no life cycle cost analysis on the ALR-67 and the

* Memorandum of H. D. Arnold, Commander, Naval Electronics System Command, to the Chief of Navy Materiel, September 15, 1980.

ALR-74 to quantify the savings that could have been realized had the services achieved commonality as intended, it is evident that a major opportunity to save millions has been missed.

Mr. Sheley cited the Airborne Self-Protection Jammer (ASPJ) program as a good illustration of the savings that can result from the services joining together in a common program. In an April 22, 1981, letter to the Honorable Mark O. Hatfield, chairman of the Senate Appropriations Committee, Dr. James P. Wade, Jr., Acting Undersecretary of Defense for Research and Engineering stated: "The commonality (being achieved with ASJP) between Navy and Air Force should result in life cycle cost savings approaching \$1 billion over other sole source, non-joint services approaches."

At the time Dr. Wade wrote to Senator Hatfield, ASPJ's cost through production was estimated at \$2.742 billion. Total life cycle costs for ASPJ were estimated at about \$4 billion. By comparison, the ALR-67 and the ALR-74 costs through production are estimated at \$1.730 billion.

The areas in which savings could be realized in any joint service program include, but are not limited to: Program management; engineering development; contractor development test; data, such as engineering drawings, specifications, software, and technical data; production facilities; common support equipment; technical support; manufacturing cost due to increased production/order quantities; sustaining engineering; depot maintenance facilities, personnel, and equipment; contractor services; and spare parts, inventory holding, and administration.

IX. FINDINGS

1. The Air Force and the Navy have failed to comply with congressional intent and OSD direction to increase commonality in radar warning receivers.

2. The actual extent of commonality is significantly less than what could have been achieved, particularly in view of the OSD's recognition that both services face essentially the same threat, the space available in their aircraft is similar, and the same contractor builds both receivers.

3. The situation has evolved primarily because (a) the services do not agree on the future availability of technology to cope with the threat, (b) Air Force and Navy opposition to commonality is motivated by the individual interests of the services, and (c) costs involved to modify the numerous different aircraft.

4. Hundreds of millions of dollars have been wasted because of the lack of commonality in the radar warning receiver systems.

X. RECOMMENDATIONS

The committee believes that, as long as the services are allowed to continue their separate efforts, they will always present arguments demonstrating the absolute need for a particular receiver. The result will be a continued proliferation of PWR's and wasted defense dollars. Accordingly, the Secretary of Defense should:

1. Recommit itself to the development of common radar warning receivers.

2. Discontinue funding separate development of ALR-67/69 update radar warning receivers and develop a detailed plan agreed upon by the services that will result in joint development and achieve significant commonality. This plan should include:

- (a) A memorandum of agreement defining the responsibilities between the Air Force and the Navy in the ALR-67/69 update program.
- (b) The formation of a joint Air Force and Navy program office.
- (c) Agreement on the enemy threat.
- (d) The best technological approach to meet that threat.
- (e) Restructuring the New Threat Warning System program with full Navy participation.
- (f) Ensurance that any new radar warning receiver, such as the Navy's proposed Integrated Electronic Warfare System, include full Air Force participation.

3. Monitor closely the implementation of the plan until a significant degree of commonality has been attained. The Secretary of Defense should keep this committee advised of the progress achieved.

